

**CLAIMS**

What is claimed is:

1. An apparatus, operable in communication system, comprising:  
an encode manager for receiving a multimedia stream; and  
an encoder system for re-encoding the received stream using a encoding parameter set to render an encoded stream with principles set forth by the encoding parameter set, wherein the encoding parameter set is determined based a encoding scheme.
2. The apparatus of claim 1, wherein the encoding scheme is selected from group consisting of a scheme based on a system bandwidth, a scheme based on available system bandwidth, a scheme based on a wireless receiver capability, a scheme based on a number of users requesting a specific multimedia stream at a designated QoS, a scheme based on a multimedia data type, a scheme based on a user preference and a scheme based on characteristics of a mobile station.
3. The apparatus of claim 2, wherein the scheme based on user preference is used to generate a billing information.
4. The apparatus of claim 2, wherein the scheme based on multimedia data type is used to generate a billing information.
5. The apparatus of claim 2, further comprising an encoder for executing the encoder parameter set based on encoding scheme.
6. The apparatus of claim 2, further comprising a plurality of encoders, each for executing the encoder parameter set based on encoding scheme.
7. The apparatus of claim 2, further comprising a bandwidth manager for determining the available bandwidth for a requested multimedia stream.

8. The apparatus of claim 1, further comprising a decoder for receiving the multimedia stream at a decoder and decoding the received stream to render decoded stream.
9. The apparatus of claim 1, wherein the encoder manager comprises a bandwidth manager for determining the encoding parameter set based on the encoding scheme.
10. The apparatus of claim 1, wherein the encoder system comprises an encoder for executing the encoder parameter set.
11. The apparatus of claim 1, further comprising transceiver for transmitting the re-encoded stream.
12. The apparatus of claim 1, wherein the encoding system providing an output configurable for handheld devices that require a first frame rate and a first bandwidth.
13. The apparatus of claim 12, wherein:
  - the first frame rate is 10 frames per second; and
  - the first bandwidth is within 16 kilo bits per second.
14. The apparatus of claim 1, wherein the received stream having a first resolution and the encoding system re-encoding the received stream to second resolution, first frame rate and first bandwidth.
15. The apparatus of claim 14, wherein:
  - the first resolution is VGA format; and
  - the second resolution and first frame rate are configured for a handheld device.
16. The apparatus of claim 14, wherein:
  - the first frame rate is within 10 to 15 frames per second; and
  - the first bandwidth is within 16 to 64 kilo bits per second.

17. The apparatus of claim 14, wherein:
  - the first frame rate is within 10 to 15 frames per second; and
  - the first bandwidth is within 32 to 64 kilo bits per second.
18. The apparatus of claim 14, wherein the second resolution is a resolution of QCIF or smaller.
19. The apparatus of claim 14, wherein the second resolution is a resolution of CIF or larger.
20. The apparatus of claim 1, further comprising a computer configured to receive the multimedia stream from a mobile station.
21. The apparatus of claim 20, wherein the mobile phone is operable in wireless communication system.
22. The apparatus of claim 1, wherein the multimedia stream is received using an over the air communication air interface.
23. The apparatus of claim 1, wherein the multimedia stream is received using an internet connection.
24. The apparatus of claim 1, further comprising a customer manager for generating a billing information based on user's preference.
25. A method for providing digital multimedia, comprising:
  - receiving a multimedia stream at an encode manager; and
  - re-encoding the received stream using an encoding parameter set to render an encoded stream with principles set forth by the encoding parameter set, wherein the encoding parameter set is determined based a first encoding scheme.

26. The method of claim 25, further comprising selecting the first encoding scheme from a group consisting of a scheme based on a system bandwidth, a scheme based on available system bandwidth, a scheme based on a wireless receiver capability, a scheme based on a number of users requesting a specific multimedia stream at a designated QoS, a scheme based on a multimedia data type, a scheme based on a user preference and a scheme based on characteristics of a mobile station.
27. The method of claim 26, further comprising generating billing information using the scheme based on user preference.
28. The method of claim 26, further comprising generating billing information using the scheme based on multimedia data type.
29. The method of claim 26, further comprising executing the encoder parameter set using an encoder.
30. The method of claim 26, further comprising executing the encoder parameter set using plurality of encoders.
31. The method of claim 26, further comprising determining the available bandwidth for a requested multimedia stream.
32. The method of claim 25, further comprising receiving the multimedia stream at a decoder and decoding the received stream to render decoded stream.
33. The method of claim 25, further comprising determining the encoding parameter set to use for re- encoding based on the encoding scheme.
34. The method of claim 25, further comprising executing the encoder parameter set using an encoder.

35. The method of claim 25, further comprising transmitting the re-encoded stream.
36. The method of claim 25, further comprising generating an output, configurable for handheld devices that require a first frame rate and a first bandwidth.
37. The method of claim 36, wherein:
  - the first frame rate is 10 frames per second; and
  - the first bandwidth is within 16 kilo bits per second.
38. The method of claim 25, wherein the received stream having a first resolution and the encoding system re-encoding the received stream to second resolution, first frame rate and first bandwidth.
39. The method of claim 38, wherein:
  - the first resolution is VGA format; and
  - the second resolution and first frame rate are configured for a handheld device.
40. The method of claim 38, wherein:
  - the first frame rate is within 10 to 15 frames per second; and
  - the first bandwidth is within 16 to 64 kilo bits per second.
41. The method of claim 38, wherein
  - the first frame rate is within 10 to 15 frames per second; and
  - the first bandwidth is within 32 to 64 kilo bits per second.
42. The method of claim 38, wherein the second resolution is a resolution of QCIF or smaller.
43. The method of claim 38, wherein the second resolution is a resolution of CIF or larger.

44. The method of claim 25, further comprising receiving the multimedia stream from a mobile station.
45. The method of claim 44, wherein the mobile phone is operable in wireless communication system.
46. The method of claim 25, further comprising receiving the multimedia stream via a communication air interface.
47. The method of claim 25, further comprising receiving the multimedia stream via an internet connection.
48. The method of claim 25, further comprising generating a billing information based on user's preference.
49. An apparatus, operable in communication system, comprising:
  - means for receiving a decoded stream;
  - means for re-encoding the received stream to render a encoded stream; and
  - means for determining an encoder parameter set to use for re-encoding wherein the encoder parameter set is based on an encoding scheme.
50. The apparatus of claim 49, further comprising means for selecting the first encoding scheme from a group consisting of a scheme based on a system bandwidth, a scheme based on available system bandwidth, a scheme based on a wireless receiver capability, a scheme based on a number of users requesting a specific multimedia stream at a designated QoS, a scheme based on a multimedia data type, a scheme based on a user preference and a scheme based on characteristics of a mobile station.
51. The apparatus of claim 50, further comprising means for generating billing information using the scheme based on user preference.

52. The apparatus of claim 50, further comprising means for generating billing information using the scheme based on multimedia data type.
53. The apparatus of claim 50, further comprising means for executing the encoder parameter set using an encoder.
54. The apparatus of claim 50, further comprising means for executing the encoder parameter set using plurality of encoders.
55. The apparatus of claim 50, further comprising means for determining the available bandwidth for a requested multimedia stream.
56. The apparatus of claim 49, further comprising means for receiving the multimedia stream at a decoder and decoding the received stream to render decoded stream.
57. The apparatus of claim 49, further comprising means for determining the encoding parameter set to use for re- encoding based on the encoding scheme.
58. The apparatus of claim 49, further comprising means for executing the encoder parameter set using an encoder.
59. The apparatus of claim 49, further comprising means for transmitting the re- encoded stream.
60. The apparatus of claim 49, further comprising means for generating an output, configurable for handheld devices that require a first frame rate and a first bandwidth.
61. The apparatus of claim 60, wherein:
  - the first frame rate is 10 frames per second; and
  - the first bandwidth is within 16 kilo bits per second.

62. The apparatus of claim 49, wherein the received stream having a first resolution and the encoding system re-encoding the received stream to second resolution, first frame rate and first bandwidth.
63. The apparatus of claim 62, wherein:
  - the first resolution is VGA format; and
  - the second resolution and first frame rate are configured for a handheld device.
64. The apparatus of claim 62, wherein:
  - the first frame rate is within 10 to 15 frames per second; and
  - the first bandwidth is within 16 to 64 kilo bits per second.
65. The apparatus of claim 62, wherein:
  - the first frame rate is within 10 to 15 frames per second; and
  - the first bandwidth is within 32 to 64 kilo bits per second.
66. The apparatus of claim 62, wherein the second resolution is a resolution of QCIF or smaller.
67. The apparatus of claim 62, wherein the second resolution is a resolution of CIF or larger.
68. The apparatus of claim 49, further comprising means for receiving the multimedia stream from a mobile station.
69. The apparatus of claim 68, wherein the mobile phone is operable in wireless communication system.
70. The apparatus of claim 49, further comprising means for receiving the multimedia stream via a communication air interface.



71. The apparatus of claim 49, further comprising means for receiving the multimedia stream via an internet connection.
72. The apparatus of claim 49, further comprising means for generating a billing information based on user's preference.
73. A mobile station, operable in a communication system, comprising:
  - a transceiver configured to communicate with a wireless provider system; and
  - a processor for displaying a multimedia stream received from the wireless provider system via the transceiver, wherein the multimedia stream is encoded using a first encoding scheme selected from a group of encoding schemes.
74. The mobile station of claimed in 73, wherein the group of encoding scheme consisting of a scheme based on a system bandwidth, a scheme based on available system bandwidth, a scheme based on a wireless receiver capability, a scheme based on a number of users requesting a specific multimedia stream at a designated QoS, a scheme based on a multimedia data type, a scheme based on a user preference and a scheme based on characteristics of a mobile station.
75. The mobile station of claim 74, wherein the scheme based on user preference is used to generate a billing information.
76. The mobile station of claim 74, wherein the scheme based on multimedia data type is used to generate a billing information.
77. The mobile station of claim 74, further comprising an encoder for executing the encoder parameter set based on encoding scheme.
78. The mobile station of claim 74, further comprising a plurality of encoders, each for executing the encoder parameter set based on encoding scheme.
79. The mobile station of claim 74, further comprising a bandwidth manager for

determining the available bandwidth for a requested multimedia stream.

80. A communication system, comprising:
- an encode manager for receiving a multimedia stream, wherein the multimedia having a first resolution; and
  - an encoder system for re-encoding the received stream to a second resolution, using a encoding parameter set to render an encoded stream with principles set forth by the encoding parameter set, wherein the encoding parameter set is determined based a encoding scheme selected from a group of encoding scheme.
81. A communication system, comprising:
- at least one decoder receiving incoming encoded multimedia streams and decoding the streams to render decoded streams;
  - at least one encoding system configured for receiving a decoded stream and encoding it using one of at least two encoding parameter sets to render an encoded stream;
  - at least one computer determining which encoding parameter set to use to encode a decoded stream; and
  - at least one wireless transceiver for transmitting an encoded stream.
82. The system of Claim 81, wherein the computer determines which encoding parameter set to use based at least in part on a system bandwidth.
83. The system of Claim 81, wherein the computer determines which encoding parameter set to use based at least in part on a current available system bandwidth.
84. The system of Claim 81, wherein the computer determines which encoding parameter set to use based at least in part on a wireless mobile receiver capability.
85. The system of Claim 81, wherein the computer determines which encoding parameter set to use based at least in part on a number of users requesting a specific multimedia stream at a designated QoS for that stream.

86. The system of Claim 81, wherein the computer determines which encoding parameter set to use based at least in part on a multimedia data type.
87. The system of Claim 81, wherein the computer determines which encoding parameter set to use based at least in part on a wireless user preference.
88. The system of Claim 86, wherein a user's service classification is used to generate billing information.
89. The system of Claim 86, wherein characteristics of the encoded multimedia stream are used to generate billing information.
90. The system of Claim 86, wherein mobile receiver capabilities are used to generate billing information.
91. The system of Claim 81, wherein at least one encoding parameter set is capable of encoding a multimedia stream at a resolution of QCIF or smaller.
92. The system of Claim 81, wherein at least one encoding parameter set is capable of encoding a multimedia stream at a resolution of CIF or larger.
93. A method for wirelessly providing digital multimedia, comprising:
  - receiving an encoded multimedia stream;
  - decoding the stream to render a decoded stream;
  - selecting at least one of at least two encoding schemes to re-encode the stream at a wireless provider facility to render a re-encoded stream; and
  - wirelessly transmitting the re-encoded stream to at least one wireless mobile station.
94. The method of Claim 93, wherein the selecting act is undertaken dynamically.

95. The method of Claim 93, wherein the selecting act is undertaken at least in part based on a bandwidth.
96. The method of Claim 93, wherein the selecting act is undertaken based at least in part on a wireless mobile receiver capability.
97. The method of Claim 93, wherein the selecting act is undertaken based at least in part on a wireless user preference.
98. The method of Claim 93, comprising using a user's service classification to generate billing information.
99. The system of Claim 93, comprising using characteristics of the encoded multimedia stream to generate billing information.
100. The system of Claim 93, comprising using mobile receiver capabilities is used to generate billing information.
101. The method of Claim 93, wherein the selecting act is undertaken based at least in part on a multimedia data type.
102. A wireless provider system, comprising:
  - means for decoding a received encoded multimedia stream;
  - first means for re-encoding the stream;
  - second means for re-encoding the stream; and
  - logic means for determining which one of the first and second means for re-encoding to use, based on at least one factor.
103. The system of Claim 102, wherein the factor is a system bandwidth.
104. The system of Claim 102, wherein the factor is a current available system bandwidth.

105. The system of Claim 102, wherein the factor is a wireless user characteristic.
106. The system of Claim 102, wherein the factor is a multimedia data type.
107. The system of Claim 102, wherein the factor is a wireless user preference.
108. The system of Claim 102, wherein a user service classification is used to generate billing information.
109. The system of Claim 102, wherein characteristics of the encoded multimedia stream are used to generate billing information.
110. The system of Claim 102, wherein mobile receiver capabilities are used to generate billing information.
111. The system of claim 102, wherein the factor is selected from group of a factor based on a system bandwidth, a factor based on a current available system bandwidth, a factor based on a wireless user characteristic, a factor based on a number of users requesting a specific multimedia stream at a designated QoS a factor based on a multimedia data type and factor based on a wireless user preference.
112. A communication system, comprising:
  - decoder means for receiving incoming encoded multimedia streams and decoding the streams to render decoded streams;
  - encoder means for receiving a decoded stream and encoding it using one of at least two encoding parameter sets to render an encoded stream and for determining which encoding parameter set to use to encode a decoded stream; and
  - transceiver means for transmitting an encoded stream.
113. The system of Claim 112, wherein the encoder means further for determining which encoding parameter set to use based at least in part on a system bandwidth.

114. The system of Claim 112, wherein encoder means further for determining which encoding parameter set to use based at least in part on a current available system bandwidth.
115. The system of Claim 112, wherein the encoder means further for determining which encoding parameter set to use based at least in part on a wireless mobile receiver capability.
116. The system of Claim 112, wherein the encoder means further for determining which encoding parameter set to use based at least in part on a number of users requesting a specific multimedia stream at a designated QoS for that stream.
117. The system of Claim 112, wherein the encoder means further for determining which encoding parameter set to use based at least in part on a multimedia data type.
118. The system of Claim 112, wherein the encoder means further for determining which encoding parameter set to use based at least in part on a wireless user preference.
119. The system of Claim 112, further comprising a billing means for generating billing information based on a user's classification.
120. The system of Claim 112, further comprising a billing means for generating billing information based on characteristics of the encoded multimedia stream a user's classification.
121. The system of Claim 112, further comprising a billing means for generating billing information based on mobile receiver capabilities.
122. The system of Claim 112, wherein at least one encoding parameter set comprises an encoding means to encode the multimedia stream at a resolution of QCIF or smaller.

123. The system of Claim 112, wherein at least one encoding parameter set comprises an encoding means to encode the multimedia stream at a resolution of CIF or larger.